incomplete hollow cylinder of the bobbin **310**. Similarly, the length of the folding/unfolding axis winding part **404** is decided according to the number of turns and a diameter of the folding/unfolding shaft **305**. With regard to each portion **402** or **403**, the number of turns is usually two or three.

In FIG. **7**B, the FPC **400**R.**2** has the same structure as the FPC **400**R.**1** of FIG. **7**A except shape of connector-side end portions of the rotating axis winding part **402** and the folding/unfolding axis winding part **404**.

Referring to FIG. **7**C, the FPC **400**L.**1** has a first connector **401** to be connected to the circuit board provided in the lower unit **100**. A rotating axis winding part **402** is for being wound around the rotative direction wound portion **350**. A fixing part **405** is for being fixed by the FPC holding member **320** and the FPC fixing member **340**. A folding/unfolding axis winding part **406** (corresponding to the fourth part mentioned above) is for being wound around the left-hand folding/unfolding direction wound portion **351**. A second connector **407** is for connecting with the circuit board provided in the upper unit **200**.

The fixing part **405** includes a vertical part **405***a* to be extended from the bobbin **310** and sandwiched between the guide plate **329** and the pressing plate **344**, and a horizontal part **405***b* to be sandwiched between the holding plate **321** and the pressing plate **341** and extended to the left-hand folding/unfolding direction wound portion **351** along the guide arm **322**.

The length of the rotating axis winding part **402** and the folding/unfolding axis winding part **406** is decided like the FPC **400**R.**1** of FIG. **7**A.

In FIG. **7**D, the FPC **400**L.**2** has the same structure as the FPC **400**L.**1** of FIG. **7**C except shape of connector-side end portions of the rotating axis winding part **402** and the folding/unfolding winding part **406**.

Referring to FIG. **8**, the description will be made about a process for attaching two FPCs **400**L.**1** (or **400**L.**2**) and **400**R.**1** (or **400**R.**2**) to the hinge mechanism.

First, the FPCs **400**L.**1** and **400**R.**1** are partially placed on the holding plate **321** and the guide plate **329** so that one of the FPCs **400**L.**1** and **400**R.**1** is laid on the other in large part. The fixing member **340** is fixed to the holding member **320** by the means of hooks **326-328** and **330-331** so that the fixing portion **403** and **405** are sandwiched between the FPC holding member **320** and the FPC fixing member **340** and fixed by them. Specifically, the pressing plate **341** is fixed by the hooks **326-328** and the pressing plate **344** is fixed by the hooks **330** and **331**.

Next, the resulting set of the FPC holding member **320**, FPC fixing member **340** and FPCs **400**L.**1** and **400**R.**1** is attached to the hinge unit **300***a*. This is accomplished by fitting the guide plates **324** and **325** to the folding/unfolding shaft **305**, and clipping the outer cases of the folding/unfolding resistance generating portions **308***a* and **308***b* with the clips **342** and **343**. In this time, the holding member **320** prevents the FPCs **400**L.**1** and **400**R.**1** from coming into contact with the hinge unit. Accordingly, assembly is easy to be made.

While the set including the FPCs **400**L.**1** and **400**R.**1** is attached to the hinge unit **300***a*, the fixing parts **403** and **405** of the FPCs are partially put in the notch **314** of the bobbin **310** combined with hinge unit **300***a*. Accordingly, the rotating axis winding parts **402** of the FPCs **400**L.**1** and **400**R.**1** can be wound around the rotative direction wound portion **350** in this condition. The rotating axis winding parts **402** of the FPCs are loosely wound from the inner side to the outer side in a spiral shape around the rotative direction wound portion **350**. Furthermore, the folding/unfolding axis winding part **406** of the FPC **400**L.**1** is loosely wound from the inner side to the outer side in a spiral shape around the left-hand folding/unfolding direction wound portion **351**. Similarly, the folding/unfolding axis winding part **404** of the FPC **400**R.**1** is loosely wound from the inner side to the outer side in a spiral shape around the right-hand folding/unfolding direction wound portion **352**. Thus, the wiring device is completed. The wiring device is shown in FIG. **9**.

The rotating axis winding parts **402** of FPCs are tightened by rotation of the upper unit **200** in the same direction as a winding direction thereof. On the other hand, when the upper unit **200** rotates in inverse direction, the rotating axis winding parts **402** are loosened. This is true with respect to the folding/unfolding axis winding parts **404** and **406**. Therefore, the FPC merely receives small stress when the upper unit **200** is folded/unfolded and/or rotated in relation to the lower unit **100**. This lengthens the lifetimes of the FPCs **400**L.**1** and **400**R.**1**.

For the small stress given to each FPC, it is desirable that the number of turns of each winding parts **402**, **404** or **406** is equal to or more than two. In particular, two or three is desirable in consideration of the loosed winding diameter of each winding parts.

The wiring device mentioned above has two FPCs. However, the number of FPCs is not limited to two in this embodiment. For instance, as shown in FIG. **10** or **11**, the only left-side or right side FPC maybe included in the wiring device. Furthermore, the wiring device may have three or more FPCs. For example, the four FPCs illustrated in FIGS. **7**A-**7**D can be used. When the three or more FPCs is used, the FPCs for the left-side folding/unfolding direction wound portion **351** and the FPCs for the right-side folding/unfolding direction wound portion **352** are alternately laid.

Thus, the hinge structure of this embodiment can deal with various numbers of FPCs without modification thereof. Therefore, it is unnecessary to widen a width of one FPC because a plurality FPCs can be used for a large number of signal lines. Use of the wide FPC needs long rotating axis and long folding/unfolding axis. However, the hinge structure of this embodiment is not actually affected by the number of signal lines because the plural FPCs having a predetermined width can be used.

Additionally, if the folding/unfolding shaft **305** is reduced in diameter at the left-hand and the right-hand folding/unfolding direction wound portions **351** and **352**, the folding mobile phone can be made smaller and thinner since the winding diameter of the FPC wound around the take-up portions **351** and **352** can be made smaller.

Still furthermore, a T shaped FPC may be used with the hinge structure. The T shaped FPC is, for example, a form such that the FPC **400**R.**1** of FIG. **4**A is laid on the FPC **400**L.**1**. The T shaped FPC combined with the hinge mechanism is illustrated in FIGS. **12** and **13**. FIGS. **12** and **13** are an oblique perspective view and a plane view of the hinge mechanism with the T shaped FPC. Two or more T shape FPC may be also used with the hinge structure.

While this invention has thus far been described in conjunction with the preferred embodiment thereof, it will readily be possible for those skilled in the art to put this invention into practice in various other manners.

For example, the hinge structure may be used for a folding small size information device (or portable information terminal) such as a personal digital assistant (PDA).

What is claimed is:

1. A wiring device for use in a folding portable device including an upper unit, a lower unit and a hinge unit mechanically connecting said upper unit to said lower unit,